
Genetic Factor Enables Immature Cells to Form Normal Heart Tissue

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Researchers at the Gladstone Institute for Cardiovascular Disease found a genetic factor that helps in the earliest stages of heart development as the primitive tube loops around on itself and forms the separate chambers. This factor -- a short relative of DNA called microRNA -- has an identical counterpart in humans, leading the researchers to believe that their work in fish is likely to relate directly to human heart development. When the researchers interfered with this microRNA while the heart was developing, the immature heart muscle cells failed to mature and the heart chambers didn't form normally. These heart muscle precursors are a stage in between the embryonic stem cell and the mature heart muscle cell. The heart is among the first organs to develop and also the most critical. When the heart doesn't develop properly the embryo dies. What's more, common birth defects involve abnormalities in how these chambers form. Understanding all the steps between an embryonic stem cell and the mature heart cell could help researchers prevent or treat birth defects of the heart.

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